

Applicant : James D. Hansen et al.
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Attorney's Docket No.: 12950-001001 / 56512US002

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) An orthodontic separator having the shape of an o-ring, said separator dimensioned such that it can be inserted between adjacent teeth, ~~said separator being and characterized in that when inserted between adjacent teeth in the oral environment and water activated~~, it exhibits an increase in compressive force ~~wherein said separator is in the shape of an e-ring or dog bone on the adjacent teeth sufficient to push the teeth apart, and wherein said separator comprises a hydrophilic polymer.~~
2. (Original) The orthodontic separator according to claim 1, wherein the compressive force exerted by the separator increases by greater than about 5% within about 4 hours as measured by the Compressive Force Measurement Test Procedure.
3. (Original) The orthodontic separator according to claim 1, wherein said separator is a polymer that expands from an original volume V_0 to a volume V_1 in the oral environment, where $V_1 > V_0$.
4. (Cancelled)
5. (Currently Amended) The orthodontic separator according to ~~claim 4~~ claim 1, wherein said hydrophilic polymer absorbs between 6 and 120% by weight water.
6. (Currently Amended) The orthodontic separator according to ~~claim 4~~ claim 1, wherein said hydrophilic polymer undergoes a weight increase of between 50 to 70 % after immersion in water for 1 hour at 37°C.

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7. (Cancelled)

8. (Currently Amended) The orthodontic separator according to ~~claim 4~~ claim 1, wherein said hydrophilic polymer undergoes a volume increase of between 80 to 100% after immersion in water for 2 hours.

9. (Currently Amended) The orthodontic separator according to ~~claim 4~~ claim 1, wherein said hydrophilic polymer comprises a polyurethane.

10. (Original) The orthodontic separator according to claim 9, wherein said polyurethane comprises an aliphatic polyether polyurethane.

11. (Currently Amended) The orthodontic separator according to ~~claim 4~~ claim 1, wherein said hydrophilic polymer is selected from the group consisting of cellulosic polymers, polyamides, polyether polyamide copolymers, ethylene vinyl acetate copolymers, polyvinyl alcohol, polyvinyl acetate, polymethylmethacrylate, ethylene oxide copolymers, and combinations thereof.

12. (Original) The orthodontic separator according to claim 1, wherein said separator comprises a radio-opaque additive.

13. (Cancelled)

14. (Previously Presented) An orthodontic separator, said separator dimensioned such that it can be inserted between adjacent teeth, said separator being characterized in that when inserted between adjacent teeth in the oral environment, it exhibits an increase in compressive force, and

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wherein said separator comprises a shape memory metal alloy, and wherein said separator is in the shape of a coil or washer.

15. (Original) The orthodontic separator according to claim 14, wherein said metal alloy comprises NiTi.

16. (Previously Presented) The orthodontic separator of claim 1, wherein said separator comprises a shape memory polymer.

17. (Currently Amended) A method for separating a pair of adjacent teeth in a patient's mouth comprising inserting ~~the an~~ orthodontic separator ~~of claim 1~~ between adjacent teeth, wherein upon insertion said separator is water activated to exert sufficient force on the adjacent teeth to push the teeth apart, said separator having the shape of an o-ring or dog bone, dimensioned such that it can be inserted between adjacent teeth, and characterized in that when inserted between adjacent teeth in the oral environment, it exhibits an increase in compressive force.

18. (Cancelled)

19. (Original) The method according to claim 17 further comprising removing said separator from between the teeth by drying said separator with an air syringe.

20. (Previously Presented) The method of claim 28, further comprising removing said separator from between the teeth by applying a compressed coolant gas to said separator.

21. (Previously Presented) A method for separating adjacent teeth in a patient's mouth comprising inserting an orthodontic separator consisting essentially of a shape memory material

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between the teeth, wherein upon insertion said separator is heat activated to exert sufficient force on the adjacent teeth to push the teeth apart.

22. (Original) The method according to claim 21, wherein the force exerted by the separator increases by greater than about 5% within about 4 hours as measured by the Compressive Force Measurement Test Procedure.

23. (Original) The method according to claim 21 further comprising removing said separator from between the teeth by applying a compressed coolant gas to said separator.

24-27. (Cancelled)

28. (Previously Presented) A method of using the separator of claim 14, comprising inserting said separator between adjacent teeth, wherein upon insertion said separator is heat activated to exert sufficient force on the adjacent teeth to push the teeth apart.

29. (Previously Presented) The orthodontic separator of claim 14, wherein said separator is in the shape of a coil which has an overall helical configuration, such that adjacent sections of the coil nest within each other when the coil is collapsed.

30. (Previously Presented) The orthodontic separator of claim 14, wherein said separator is in the shape of a finger washer, wave washer, or domed washer.

31. (Currently Amended) A method for separating adjacent teeth in a patient's mouth, comprising inserting ~~the an~~ orthodontic separator ~~of claim 1~~ between adjacent teeth, wherein upon insertion said separator is heat activated to exert sufficient force on the adjacent teeth to push the teeth apart, said separator having the shape of an o-ring or dog bone, dimensioned such

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that it can be inserted between adjacent teeth, and characterized in that when inserted between adjacent teeth in the oral environment, it exhibits an increase in compressive force.

32. (Previously Presented) The method of claim 31, further comprising removing said separator from between the teeth by applying a compressed coolant gas to said separator.

33. (Cancelled)